

# One century of teuthological records from the Catalan sea

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## Abstract

A commented list of the cephalopod fauna of the Catalan Sea (north-western Mediterranean) is reported. Out of 66 species mentioned for the Mediterranean Sea, 50 have been reported in the Catalan Sea from 1893 to the present.

## Riassunto

Viene presentata una breve revisione storica della composizione della teutofauna del Mare Catalano (Mediterraneo nord-occidentale), a partire dal 1893 ad oggi. Nel Mare Catalano sono state finora riferite 50 delle 66 specie di cefalopodi riportate per l'intero Mediterraneo.

## Key words

Cephalopoda, Catalan sea, NW Mediterranean.

## Introduction

The present note aims at presenting a review of the teuthofauna composition of the Catalan Sea. This sea is situated in the north-western Mediterranean Sea: it starts at the southern limit of Gulf of Lions, between Cape Creus and Cape Nao including the Balearic Islands (Fig. 1). The Catalanian cephalopod fauna includes 50 species (Tab. 1).

## History of records

One of the first authors to study the cephalopods from the Spanish coasts was Girard (1893). Nine species from the Mediterranean waters were reported by him: *Argonauta argo*, *Tremoctopus violaceus*, *Octopus vulgaris*, *Octopus macropus*, *Eledone moschata*, *Eledone cirrhosa*, *Sepia officinalis*, *Sepia elegans*, and *Loligo vulgaris*.

Lozano-Rey (1905) published a study on the teuthofauna of Catalonia and the Balearic Islands. Considering only the specimens taken in Spanish waters, he reported a total of 19 nowadays recognised species. Eleven of them were new records: *Alloteuthis media*, *Ommatrephes bartonii*, *Todarodes sagittatus*, *Illex coindetii*, *Ancistrotenthis lichtensteini*, *Chiroteuthis veranyi*, *Histioteuthis boniellii*, *Sepioloideia rondeleti*, *Rossia macrosoma*, *Sepia orbignyana*, and *Ocythoe tuberculata*.

Hidalgo (1916) recorded the presence of *Todaropsis eblanae* in waters off Barcelona.

Wirz (1955) found the bathyal octopus *Bathypolypus sponsalis* off the Menorca Island.

Taking into account these previous studies as well as his own data, Morales (1958) listed a total of 27 species in the Catalan Sea, including *Octopus salutii*, *Pteroctopus tetrarhynchus*, *Scaevargus unicolor*, *Loligo forbesi*, and *Histio-*

*teuthis reversa* as new records. The same author (Morales, 1959) first recorded the presence of *Opisthoteuthis agassizii* (synonym of *O. calypso*, see further) in the Mediterranean, thanks to an individual caught off the Catalan coast. In 1962 Morales added four new records to the Catalan teuthofauna: *Heteroteuthis dispar*, *Rondeletiella minor*, *Neorossia caroli*, and *Sepietta oweniana*.

According to Mangold-Wirz (1963) four more species had to be added to the Catalan Sea fauna: *Sepioloideia affinis*, *Sepietta obscura*, *Alloteuthis subulata*, and *Octopus defilippi*. Morales (1981) reported *Thysanoteuthis rhombus* from the harbour of Mahón (Menorca Island).

The first record of *Abralia veranyi* in the Catalan sea comes from Suau (1981). Sanchez (1985) found *Teuthowenia megalops* and Sanchez and Molí (1985) reported *Ancistrotenthis lesneuri*, *Abraliopsis pfefferi* (= *A. morisii*), *Clitenopteryx sicula*, and *Onychoteuthis banksii*. Sanchez and Morales (1986) found four species of Sepioides, namely

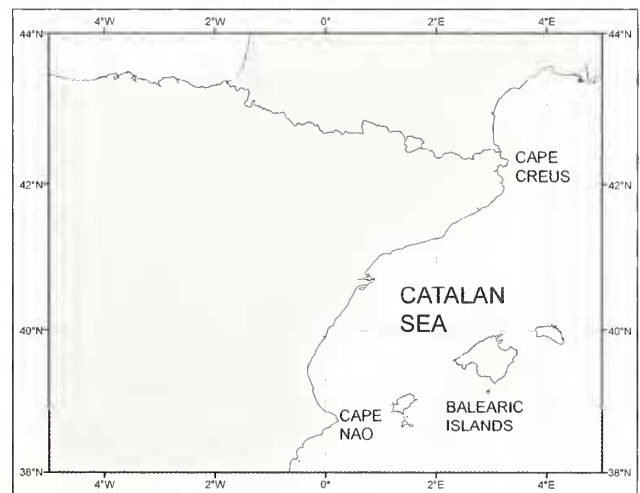


Fig. 1. The Catalan Sea.

Fig. 1. Mare Catalano.

<b>SEPIIDA</b>	
SEPIIDAE	<i>Ommastrephes bartramii</i> (Lesueur, 1821) <sup>2</sup> <i>Illex coindetii</i> (Vérany, 1839) <sup>2</sup> <i>Todaropsis eblanae</i> (Ball, 1841) <sup>3</sup> <i>Todarodes sagittatus</i> (Lamarck, 1798) <sup>2</sup>
<b>SEPIOLIDA</b>	
SEPIOLIDAE	<i>Sepiola robusta</i> Naef, 1912 <sup>13</sup> <i>Sepiola ligulata</i> Naef, 1912 <sup>13</sup> <i>Sepiola intermedia</i> Naef, 1912 <sup>13</sup> <i>Sepiola affinis</i> Naef, 1912 <sup>8</sup> <i>Sepiola rondeleti</i> Leach, 1817 <sup>2</sup> <i>Rondeletiola minor</i> (Naef, 1912) <sup>7</sup> <i>Sepietta oweniana</i> (d'Orbigny, 1841) <sup>7</sup> <i>Sepietta obscura</i> Naef, 1916 <sup>8</sup> <i>Sepietta neglecta</i> Naef, 1916 <sup>13</sup> <i>Rossia macrosoma</i> (Delle Chiaje, 1830) <sup>2</sup> <i>Neorossia caroli</i> (Joubin, 1902) <sup>7</sup> <i>Heteroteuthis dispar</i> (Rüppell, 1845) <sup>7</sup> <i>Stoloteuthis leucoptera</i> (Verrill, 1878) <sup>15</sup>
<b>TEUTHIDA</b>	
LOLIGINIDAE	<i>Loligo vulgaris</i> Lamarck, 1798 <sup>1</sup> <i>Loligo forbesii</i> Steenstrup, 1856 <sup>5</sup> <i>Alloteuthis media</i> (Linnaeus, 1758) <sup>2</sup> <i>Alloteuthis subulata</i> (Lamarck, 1798) <sup>8</sup>
CHTENOPTERYGIDAE	<i>Chtenopteryx sicula</i> (Vérany, 1851) <sup>12</sup>
THYSANOTEUTHIDAE	<i>Thysanoteuthis rhombus</i> Troschel, 1857 <sup>9</sup>
ENOPLOTEUTHIDAE	<i>Abralia veranyi</i> (Rüppell, 1844) <sup>10</sup> <i>Abraliopsis morisii</i> (Verany, 1839) (= <i>A. pfefferi</i> Joubin, 1896) <sup>12</sup>
ANCISTROCHEIRIDAE	<i>Ancistroteuthis lesueurii</i> (d'Orbigny, 1842) <sup>12</sup>
ONYCHOTEUTHIDAE	<i>Onychoteuthis banksii</i> (Leach, 1817) <sup>12</sup> <i>Ancistroteuthis lichtensteinii</i> (Férussac, 1835) <sup>2</sup>
<b>OMMASTREPHIDAE</b>	
HISTIOTEUTHIDAE	<i>Histioteuthis bonnellii</i> (Férussac, 1835) <sup>2</sup> <i>Histioteuthis reversa</i> (Verrill, 1880) <sup>5</sup>
<b>CHIROTEUTHIDAE</b>	
CRANCHIDAE	<i>Teuthowenia megalops</i> (Prosch, 1847) <sup>11</sup> <i>Galiteuthis armata</i> Joubin, 1898 <sup>14</sup> <i>Cranchia scabra</i> Leach, 1817 <sup>16</sup>
<b>OCTOPODA</b>	
OPISTHOTEUTHIDAE	<i>Opisthoteuthis calypso</i> Villanueva, Collins, Sánchez & Voss, 2002 <sup>6</sup>
OCTOPODIDAE	<i>Octopus vulgaris</i> Cuvier, 1797 <sup>1</sup> <i>Octopus macropus</i> Risso, 1839 <sup>1</sup> <i>Octopus salutii</i> Vérany, 1839 <sup>5</sup> <i>Octopus defilippi</i> Verany, 1851 <sup>8</sup> <i>Scaevurgus unicolor</i> (Delle Chiaje, 1841) <sup>5</sup> <i>Pteroctopus tetracirrhus</i> (Delle Chiaje, 1830) <sup>5</sup> <i>Eledone cirrhosa</i> (Lamarck, 1798) <sup>1</sup> <i>Eledone moschata</i> (Lamarck, 1798) <sup>1</sup> <i>Bathypolypus sponsalis</i> (P. Fischer & H. Fischer, 1892) <sup>4</sup>
ARGONAUTIDAE	<i>Argonauta argo</i> Linnaeus, 1758 <sup>1</sup>
OCYTHOIDAE	<i>Ocythoe tuberculata</i> Rafinesque, 1814 <sup>3</sup>
TREMOCTOPIDAE	<i>Tremoctopus violaceus</i> Delle Chiaje, 1830 <sup>1</sup>

**Tab. 1.** List of the species found in the Catalan Sea, with reference to their first record. 1 = Girard (1893); 2 = Lozano-Rey (1905); 3 = Hidalgo (1916); 4 = Wirz (1955); 5 = Morales (1958); 6 = Morales (1959); 7 = Morales (1962); 8 = Mangold-Wirz (1963); 9 = Morales (1981); 10 = Suau (1981); 11 = Sanchez (1985); 12 = Sanchez & Moli (1985); 13 = Sanchez & Morales (1986); 14 = Villanueva (1992); 15 = Sanchez et al. (1998); 16 = Quetglas et al. (2000).

**Tab. 1.** Elenco delle specie rinvenute nel Mare Catalano con indicazione bibliografica della prima segnalazione. 1 = Girard (1893); 2 = Lozano-Rey (1905); 3 = Hidalgo (1916); 4 = Wirz (1955); 5 = Morales (1958); 6 = Morales (1959); 7 = Morales (1962); 8 = Mangold-Wirz (1963); 9 = Morales (1981); 10 = Suau (1981); 11 = Sanchez (1985); 12 = Sanchez & Moli (1985); 13 = Sanchez & Morales (1986); 14 = Villanueva (1992); 15 = Sanchez et al. (1998); 16 = Quetglas et al. (2000).

*Sepiola ligulata*, *Sepiola intermedia*, *Sepiola robusta*, and *Sepietta neglecta*, new for the Catalan Sea.

Three new records were reported in the late nineties: *Galiteuthis armata* (Villanueva, 1992), *Stoloteuthis leucoptera* (Sanchez et al., 1998) and *Cranchia scabra* (Quetglas et al., 2000).

The systematics of the deep-sea cirrate octopod genus *Opisthoteuthis* Verrill in the Atlantic Ocean was reviewed by Villanueva et al. (2002). The specimens from the Mediterranean Sea reported as *O. agassizii* by Morales (1959);

1962) were re-examined and identified as the new species *O. calypso*. This species inhabits the East Atlantic and the Mediterranean Sea.

In the study by Hidalgo (1870-1890), 12 species were cited in the Spanish Mediterranean waters but without any references about their the geographical distribution. Nine of them were reported in the Girard's paper (1893). One of the species reported by Hidalgo was *Spirula spirula*, recorded thanks to the occurrence of its shells. Since empty buoyant shells may be carried by currents well far

away their natural area (Nesis, 1987) this record was not take into consideration herein. Bello (1986) and Mangold and Boletzky (1988) did not include this species in their catalogues of the Mediterranean teuthofauna; however Bello (2003) reports it in an updated list of Mediterranean cephalopods.

## Conclusions

In all, 50 cephalopod species have been found in the Catalan Sea, that is 16 less than those recorded in the whole Mediterranean (Bello, 2008). Most of the species not reported from the Catalan Sea belong to the pelagic teuthofauna, rarely caught by otter trawl, as well as by other fishing gear. Moreover, four of the cephalopods missing from the Catalan Sea are recent lessepsian migrants that have been recorded only in the eastern Mediterranean basin. On the contrary in the Catalan Sea have been recorded for the first time two Atlantic species new to the Mediterranean fauna, both of them belonging to the family Cranchiidae, namely *Tenthioweinia megalops* (Sanchez, 1985) and *Crauchia scabra* (Quetglas et al., 2000). A third allochthonous cephalopod recorded in this sea is the sepiolid *Stoloteuthis leucoptera*. It was reported for the first time in the Mediterranean (precisely in the Ligurian Sea) by Orsi-Relini and Massi (1991). Afterwards Sanchez et al. (1998) reported this sepiolid squid for the first time in the northern Tyrrhenian and the Catalan seas. Most probably *Stoloteuthis leucoptera* has widely spread out and has become abundant in the whole western Mediterranean.

It appears that the Catalan Sea, although not bordering the Gibraltar Strait, plays the role of a sentinel in collecting exotic teuthofauna that enters the Mediterranean from the Atlantic Ocean.

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